Dr. Mamta Sharma

Assistant Professor,
Department of Applied Sciences,
UIET, Panjab University, Chandigarh
Email id: mamta.phys@gmail.com

Web:https://scholar.google.co.in/citations?user=dpClXe4AAAAJ&hl=en
https://www.researchgate.net/profile/Mamta_Sharma2

Educational Qualification	
2013	***Ph.D.(Physics)*** from Department of Physics, Panjab University, Chandigarh) Specialization: Solid State Physics (Experimental), Entitled: Synthesis and characterization of II-VI core/shell nanostructure and Device fabrication under the supervision of *Prof. S.K. Tripathi*, Department of Physics, Panjab University, Chandigarh
2009	***M. Phil.(Physics)*** from Panjab University, Chandigarh Entitled: Fabrication and characterization of Schottky diode from n-PbSe nanorods dispersed in polymer matrix
2007	***M.Sc.(Physics)*** from Guru Nanak Dev University, Amritsar
2005	***B.Sc (Physics, Chemistry & Maths)*** from Guru Nanak Dev University, Amritsar

Experience

- Assistant Professor in Department of Applied Sciences (Physics), UIET, Panjab University, Chandigarh since 04 September 2013
- Assistant Professor in DAV College, Chandigarh (From 22-07-2013 to 03-09-2013)

Area of specializations/Research Interest

- II-VI Semiconducting Core/shell nanocomposites
- Metal Oxide Nanostructures
- Conducting Polymers
- Nonlinear optical characterization using z-scan technique.
- Device Fabrication (Schottky diode, MOS diode and Gas Sensors)

Faculty Development Programs/ STC/online courses Attended:-

1. Faculty Development Program On "Exploring Science and Technology Interconnections" from 3rd-8th August, 2020 organized by UIET, Panjab University, Chandigarh.
2. TEQIP sponsored faculty development program on "Effective Teaching", 9-14 January, 2017.
3. TEQIP sponsored faculty development program on "Role of basic sciences in engineering", 11-16 Nov., 2013.

Research Supervision: -

- M. Tech. (Material Science and Technology) Student guided for one year research project: 9
- M.Sc. (Physics) students guided for 6-month research project: 2

Achievement

Research award of the year 2016 for publication "Optical and Electrical properties of Polyvinyl Alcohol doped CdS nanoparticles prepared by Sol- Gel Method, (J of Material Science: Materials in Electronics 26 (5), (2015) 2760-2768)" awarded by U.I.E.T., Panjab University, Chandigarh in academic year 2015-16

Publications in International Journals

1. Prussian Blue Analogue as Cathode Materials in Sodium Ion batteries: A Review, Ganya Goel, **Mamta Sharma** and S.K. Tripathi,
J energy Storage 126 (2025) 116995.

2. Electrochemical performance study of polyaniline wrapped LiAlGdMn2O4 as a cathode material.
Rahul Sharma, Nihal**, Mamta Sharma** and J. K. Goswamy
Materials Science and Technology. 2025;0(0).
doi:10.1177/02670836241308801

3. gCN/ZnO nanocomposite as an efficient sunlight active photocatalyst for Rhodamine B dye degradation
Nihal, Chandresh Kumari, Rahul Sharma, **Mamta Sharma**, Sukhdev Dogra, Ishu Sharma, B.C. Choudhary and J.K. Goswamy,
Hybrid Advances, 8 (2025), 100346

4. Enhanced Acetone Sensing Based on Group-11 Metal (Cu, Ag, and Au) Nanoparticles Embedded in Graphitic Carbon Nitride (gCN)
   Nihal, Rahul Sharma, Navjot Kaur, **Mamta Sharma**, B.C. Choudhary and J. K. Goswamy
   Atoms (2023) 11(5), 78

5. Transition metal (Ni, Pd and Pt)-embedded graphitic carbon nitride (gCN) monolayer as an acetone sensor: a computational and experimental study Journal of Materials Science: Materials in Electronics
   Nihal, Rahul Sharma, Navjot Kaur, **Mamta Sharma**, B.C. Choudhary and J.K. Goswamy
   Journal of Materials Science: Materials in Electronics 34 (2023) 1005

6. Improved room temperature ethanol vapors sensing using silver nanoparticles decorated graphitic carbon nitride (Ag-gCN) nanocomposite
   Nihal, Rahul Sharma, Navjot Kaur, **Mamta Sharma**, B.C. Choudhary and J.K. Goswamy
   Materials Letters Volume 342, 1 July (2023) 134343

7. Au decorated WO_3-SnO_2 nanocomposite for enhanced benzene vapors sensing performance
   Nihal, Rahul Sharma, **Mamta Sharma**, and J. K. Goswamy
   Phys. Scr. 98 045809 (2023)

8. Tungsten Disulfide Wrapped WO_3 Based Thin Film Transparent Electrode Material for Electrochromic Device Application
   Rahul Sharma, Nihal, **Mamta Sharma**, and J. K. Goswamy
   J. Electrochem. Soc. 170 036504 (2023)

9. Computational investigation of Zn doped graphitic carbon nitride (gCN) monolayer for CO_2 sensing
   Nihal, Rahul Sharma, Navjot Kaur, **Mamta Sharma**, B.C. Choudhary and J. K. Goswamy
   Material today proceedings (2023)

10. Synthesis and characterization of MoS_2/WO_3 nanocomposite for electrochromic device application
    Rahul Sharma, Nihal, **Mamta Sharma**, and J. K. Goswamy
    International Journal of Energy Research 46, 2022, 22176-22187

11. LiMn2O4-rGO/PANI Nanocomposite as a Cathode Material for Li-Ion Batteries.
    Rahul Sharma, Nihal, **Mamta Sharma**, and J. K. Goswamy

Journal of The Electrochemical Society 169, 2022, 083505, 2022

12. Synthesis and characterization of WO_3– SnO_2/rGO nanocomposite for Propan-2-ol sensing,
Nihal, Rahul Sharma, **Mamta Sharma**, and J. K. Goswamy
Sensors International Volume 3, 2022, 100172

13. Synthesis and characterization of Ag Metal doped SnO2, WO3 and WO3-SnO2 for Propan-2-ol sensing,
Nihal, Rahul Sharma, **Mamta Sharma**, and J. K. Goswamy *Results in Materials Volume 9, March 2021, 100127*

14. S.K. Tripathi and **Mamta Sharma**, Studies on Green light emitting Polymer coated CdSe/ZnSe Core/Shell nanocrystals, (***Material Research Bulletin 48 (2013) 1837)***

15. Mamta Sharma and S.K. Tripathi, Analysis of Interface States and Series Resistance for Al/PVA:n-CdS Nanocomposite Metal-Semiconductor and Metal-Insulator-Semiconductor Diode Structures, ***Applied Physics A 13 (2), (2013)491-499***

16. Mamta Sharma and S.K. Tripathi, Photoluminescence Study of CdSe Nanorods embedded in a PVA Matrix, (***Journal of luminescence 135 (2013) 327)***

17. Mamta Sharma and S.K. Tripathi, Study of Barrier Inhomogeneities in I–V-T and C-V-T Characteristics of Al/Al_2O_3/PVA:n-ZnSe MOS Diode, (***J. Appl. Phys. 112 (2012) 024521)***

18. S. K. Tripathi and **Mamta Sharma** Analysis of the forward and reverse bias I-V and C-V characteristics on Al/PVA:n-PbSe polymer nanocomposites Schottky diode, (***J. Appl. Phys. 111 (2012) 074513)***

19. Mamta Sharma and S.K. Tripathi Preparation and nonlinear characterization of zinc selenide nanoparticles embedded in polymer matrix, (***Journal of Physics and Chemistry of Solids 73 (2012) 1075)***

20. Mamta Sharma and S.K. Tripathi, Frequency and voltage dependence of admittance characteristics of Al/Al_2O_3/PVA:n-ZnSe Schottky barrier diodes, (***Materials Science in Semiconductor Processing 41, (2016) 155-161)***

21. S.K Tripathi, R Kaur, J Kaur, **Mamta Sharma,** Third-order nonlinear optical response of Ag–CdSe/PVA hybrid nanocomposite, (***Applied Physics A 120 (3), 10471057***)

22. Mamta Sharma and S.K. Tripathi , Two Photon Absorption Studies of Polymer

coated CdSe/ZnSe and CdSe/CdS Core/Shell Nanostructures, (***Chemical Physics letters, 634, (2015) 266-270)***

23. **Mamta Sharma** and S.K. Tripathi, Optical and Electrical properties of Polyvinyl Alcohol doped CdS nanoparticles prepared by Sol- Gel Method, (***J of Material Science: Materials in Electronics 26 (5), (2015) 2760-2768)***

24. **S. K. Tripathi**, Ramneek Kaur and Mamta Sharma, Synthesis and characterization of TGA-capped CdTe nanoparticles embedded in PVA matrix, (***Appl. Phys. A 118 (4), 1287- 1295 (2014))***

25. Vaneeta Bala, **Mamta Sharma**, S.K. Tripathi, Ranjan Kumar, Investigations of Al:CdS/PVA nanocomposites: A joint theoretical and experimental approach, (***Materials Chemistry and Physics 146 (2014) 523–530)***

26. **Mamta Sharma** and S.K. Tripathi, Electrical conduction mechanism of Polymer Dispersed CdSe/CdS Core/Shell Heterojunction Diode, (***Science of Advanced Materials 5 (2013) 699-708)***

27. **Mamta Sharma** and S.K. Tripathi Temperature dependent current-voltage (I-V) characteristics of Al/n- Cadmium Selenide-Polyvinyl alcohol (Al/n-CdSe-PVA) Schottky diode, ***Optoelectronics and Advanced Materials -Rapid Communications 6 (2012) 200)***

28. Zn-ion Batteries: ZnMn2O4 as Cathode Material, Rahul Sharma, Nihal, **Mamta Sharma**, and J. K. Goswamy, *Material Today: Proceedings 26 (2020) 3378-3385*

29. N-GO doped Titanium-dioxide a promising material for Detection of Volatile Organic Compounds, Rahul Sharma, Nihal, **Mamta Sharma,** and J. K. Goswamy, *Material Today: Proceedings 26 (2020) 3390-3396*

30. Electrochemical performance of ZnMn2O4 as cathode material for Zn-batteries, Rahul Sharma and **Mamta Sharma**, *AIP Conf. Proc. 2220, 020113 (2020)*

31. Optical and surface properties of bio- synthesized silver nanoparticles Anjali, J.K. Goswamy and **Mamta Sharma,** *AIP Conf. Proc. 2220, 020131 (2020)*

32. Synthesis of reduced graphene-oxide doped stannous oxide and its characterizations Nihal, Harjot singh and **Mamta Sharma,** *AIP Conf. Proc. 2220, 020137 (2020)*

33. Li-ion battery: lithium cobalt oxide as cathode material Rahul Sharma, Rahul, Nihal and **Mamta Sharma,** *AIP Conf. Proc. 2265, 030614 (2020)*

34. PVA:n-CdSe/CdS core/shell nanorods as MIS Diode
Mamta Sharma and SK Tripathi, *AIP Conf. Proc. 2265, 030471 (2020)*

35. LiMn2O4 spinel structure as cathode material for Li-ion batteries,
Rahul Sharma, Nihal**, Mamta Sharma,** and J. K. Goswamy, *AIP Conference Proceedings 2142, 040024 (2019)*

36. Effect of rGO doping on hydrothermally synthesized WO3 Nanofibers
Nihal, Rahul Sharma, J. K. Goswamy, SK Tripathi and **Mamta Sharma,** *AIP Conference Proceedings 2142, 080009 (2019)*

37. Shashi Janeoo, **Mamta Sharma**, Gurinder Singh and J. Goswamy, Structural and optical characterization of In2O3/PANI nanocomposite prepared by insitu polymerization, ***AIP Conf. Proc. 1731, 050096 (2016)***

38. R Kumar, R Kaur, **M Sharma**, M Kaur, SK Tripathi, Temperature dependence diode parameters studies of Al/CuPc/n-Si/Al structure, ***AIP Conf. Proc. 1675, 030078 (2015)***

39. **Mamta Sharma** and S.K. Tripathi, Evaluation of Third Order Nonlinear Optical Parameters of CdS/PVA Nanocomposite, ***AIP Conf. Proc. 1665, 050083 (2015)***

40. **Mamta Sharma** and S. K. Tripathi, Temperature dependent capacitance-voltage measurement of Al/Al2O3/PVA:n−CdSe MIS diode, ***AIP Conf. Proc. 1591, 516 (2014)***

41. Ramneek Kaur, **Mamta Sharma** and S. K. Tripathi, Structural and Electrical Characterization of Ag Doped CdSe/PVA Nanocomposite Thin Film, ***AIP Conf. Proc. 1536 (2013) 129.***

42. Anubhuti Tripathi and **Mamta Sharma** Temperature Dependent I-V Characteristics of the Al/Rhodamine-6G/n-Si Organic MOS Diode, ***AIP Conf. Proc. 1536 (2013) 317.***

43. **Mamta Sharma** and S. K. Tripathi,Temperature dependent barrier height of MIS diode of Al/Al_2O_3/n-CdSe/CdS/PVA Core/shell quantum dot., ***AIP Conf. Proc. 1447 (2012) 349***

44. Isha Gawri, **Mamta Sharma** and S. K. Tripathi Frequency Dependent Electrical Characterization of Al/Al_2O_3/PbSe/PVA MIS Diode, ***AIP Conf. Proc. 1393 (2011) 281.***

45. Anny Narang, Gurvir Kaur, **Mamta Sharma** and S.K. Tripathi, Preparation and

Characterization of CdSe/CdS/PVA Core/shell Material, ***AIP Conf. Proc. 1393 (2011) 193.***

46. **Mamta Sharma** and S.K. Tripath, Third Order Optical Nonlinearity of CdSe/PVA Nanocomposites, ***AIP Conf. Proc. 1393 (2011) 115.***

47. **Mamta Sharma**, Anny Narang, Gurvir Kaur and S.K. Tripathi, In-situ generation of CdSe Nanorods in PVA Matrix, ***AIP Conf. Proc. 1313 (2010) 189.***

48. **Mamta Sharma** and S.K. Tripathi , Fabrication and Characterization of MIS Diode of Al/Al_2O_3/PVA:n-CdSe Nanocomposite Film, ***Emerging Paradisms in nanotechnology (2012) 577-584. (ISBN-9788131789919).***

49. S.K. Tripathi, Samandeep and **Mamta Sharma,** Synthesis and characterization of nanocomposite of polyvinyl alcohol and lead selenide nanoparticles, ***Proceedings of National Conference on Recent Advances in Condensed Matter Physics (RACMP 2009) pp. 211-215.***